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ABSTRACT

This report confirms anecdotal evidence that language teachers do find large classes to be problematic, collates data on class sizes in various parts of the world, and investigates the possibility of defining a large class, at least from the teachers'points of view. The first section is introductory. The second presents findings of a small-scale (n=46) investigation of the perceptions of native-speaking and non-native-speaking teachers of English as a Second Language (ESL) of the characteristics of large classes. The third section describes a larger study of ESL teachers' experiences with and perceptions of class size in Great Britain, Turkey, Indonesia, Madagascar, Mali, Japan, Greece, Jordan, and Spain. Section 4 discusses what the study tells about actual class sizes, and section 5 is a detailed analysis of the relationship between teachers' experiences and their perceptions of class size. It is concluded that class size varies across countries and probably across institution type. No evidence that teachers share a universal conception of ideal class size was found, but there appeared to be a positive correlation between the largest class regularly taught and both perceptions of an ideal class and perceptions of what a large class is. Further research is recommended. (MSE)

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LANCASTER - LEEDS

LANGUAGE LEARNING IN LARGE CLASSES

RESEARCH PROJECT

HOW LARGE ARE LARGE CLASSES?

HYWEL COLEMAN

PROJECT REPORT NO. 4

Hywel Coleman
How Large Are Large Classes?

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1 Introduction (1)

This Report has three purposes. The first is to confirm anecdotal evidence that language teachers do indeed find large classes to be problematic. This constitutes the first of the nine research areas which the Lancaster-Leeds Language Learning in Large Classes Research Project is investigating (see Coleman, Project Report No. 2, 1989). The second purpose is to collate data on class sizes in various parts of the world. This is the second of the nine research areas. The third objective of this Report is to begin to investigate the possibility of defining a large class, at least from the point of view of the teachers who teach in large classes. This is one aspect of the fourth research area identified in Project Report No. 2. The work which is reported here was carried out during 1987.

Section 2 presents the findings of a small-scale investigation of teachers' perceptions of the characteristics of large classes. Section 3 then describes the procedure employed in a more ambitious study of teachers' experience of and perceptions of class sizes. Section 4 discusses what this study tells us about actual class sizes. Next, Section 5 is a detailed analysis of the relationships between teachers' experiences and their perceptions of class size. Finally, Section 6 is a summary and conclusion.

2 The Characteristics Of Large Classes

Our first task was to allay doubts that the whole of our approach to the investigation of language learning and teaching in large classes was unjustifiably skewed in a negative direction. That is to say, we felt that we needed evidence that teachers really do think of large classes as being troublesome phenomena. At the same time we wanted to find evidence that the number of students in a class is only one of the characteristics of large classes, as perceived by teachers.

Two groups of practising teachers of English who were participating in courses in the Institute for English Language Education (IELE) at Lancaster early in 1987 were invited to complete a very simple questionnaire. The questionnaire consisted of just one question :

> What do you think of when you see or hear the term 'large class'? Please make a list of your ideas.

Forty-six responses were received (23 from both groups). Five native-speaker members of the staff of IELE were among those who completed the questionnaire; the other 41 respondents were non-native speakers and came from a variety of countries, including Brazil, Jordan, Palestine and Burkina Faso.

Respondents needed approximately ten minutes to complete the questionnaire. The respondents in one of these two groups were

also asked to indicate how many people they thought there would have to be in a class for it to be considered 'large'. Some respondents in the other group also made comments about class numbers even though they had not been specifically asked to do so.

Our analysis of responses to this simple, open-ended questionnaire was not statistically detailed. The responses made by members of the two groups of teachers fell into several categories, the most important of which were as follows :

- difficulties encountered in teaching large groups
- numbers
- other difficulties found in association with large classes (poorly motivated students, shortage of resources, etc)
- advantages of large classes (learners can be anonymous and there is less likelihood of their ignorance being exposed, students have more opportunities to make friends, large classes are a more efficient means of exploiting limited resources, etc)
- solutions and requirements.

For our purposes at this preliminary stage, it was the responses in the first two categories which were of greatest interest. In both groups, respondents mentioned, on average, between two and three disadvantages each; when combined these formed an extensive catalogue of the difficulties which they associated with language teaching in large classes. Only one or two people mentioned advantageous characteristics of large classes. It is useful to discover, nevertheless, that for some teachers there *are* advantages associated with large classes.

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Just over half of the respondents in the group which was *not* asked specifically about the numbers which they associated with large classes did in fact mention a number somewhere in their responses.

Our initial interpretation, in 1987, of the findings of this questionnaire settled the doubts which we intended to tackle in the first cluster of research questions : i.e. (a) large classes *are* perceived by teachers to be troublesome, difficult, problematic; and (b) size is just one of the characteristics which teachers associate with the term 'large class'. This interpretation influenced the way in which we approached ensuing steps in the research and, in particular, it had an influence on the way in which we phrased later questionnaires. (2)

3 Research Procedure

With these initial doubts out of the way, the members of the Research Project felt able to move on to tackle the matters raised in the second and fourth clusters of research questions (Project Report No 2). In other words, we wanted to pursue the issues of just how large classes are, and the point at which teachers begin to think of classes as being large. To some extent the first questionnaire (Section 2 above) had thrown light on these matters, but only in a very incomplete way. For example, it had already become apparent that 'large' means

different things to different people. It was now necessary to find more specific answers to the demographic question about actual class sizes (discussed in Section 4 below) and the perceptual question about the point at which teachers believe classes become large (discussed in Section 5).

The Group designed a questionnaire which asks respondents to state the number of learners in the largest class which they normally teach, the number in the smallest class which they normally teach, and their usual class size. The questionnaire also asks respondents to state what they believe to be the size of the ideal class, and to indicate the points at which problems begin because classes are too small or too large, and the points at which classes become intolerably small or large. This questionnaire has been repeatedly piloted and revised, and it is now in its fifth version. A copy may be found in Appendix 1.

By August 1987 we had received twelve sets of responses to the 'numbers' questionnaire. The total number of completed questionnaires received is 201. Details are given in Table 1. A brief description of the twelve groups of respondents follows.

1 **IELE (1)** 35 participants in courses at the Institute for English Language Education, Lancaster; from Brazil, Mali, Sénégal and Palestine, with one or two representatives from several other countries; administered on 13th March 1987.

2 **IELE (2)** 13 participants in courses at IELE, Lancaster; administered on 11th June 1987.

3 **Turkey** 12 English lecturers at Anadolu University, Eskisehir, Turkey; collected by Hülya Özcan; received in Lancaster in May 1987.

Table 1 *Sources of Responses to Questionnaire on Actual and Perceived Class Size*

Source		Responses
1	IELE (1)	35
2	IELE (2)	13
3	Turkey	12
4	Indonesia (1)	28
5	Madagascar	14
6	Mali	21
7	Japan	13
8	Colchester	8
9	Greece	8
10	Jordan	24
11	Spain	12
12	Indonesia (2)	13
Total		201

4 **Indonesia (1)** 28 English lecturers at Universitas '45 in Ujung Pandang, Indonesia; collected by Jacob Sabandar, English language consultant to the university; received in Lancaster on 16th June 1987.

5 **Madagascar** 14 English lecturers at the University of Madagascar in Antananarivo and at other institutions; collected by Zanakiniaima Voahirana; received in Lancaster in June 1987.

6 **Mali** 21 English teachers and lecturers at a variety of institutions; collected by Seydou Siaka Bengaly of the Ecole Normale Supérieure in Bamako; received in Lancaster in June 1987.

7 **Japan** 13 English lecturers (both Japanese and foreign), mostly working at the University of Tsukuba in Ibaraki; collected by Virginia LoCastro; received in Lancaster on 27th June 1987.

8 **Colchester** 8 secondary school teachers of English from Chad and Burkina Faso participating in a short course at the Colchester English Studies Centre; visited Lancaster on 20th May 1987; returned the questionnaires to Lancaster at the beginning of June.

9 **Greece** 8 secondary school teachers of English; collected by Sophia Papaethymiou-Lytra of the Department of English Studies at the University of Athens; received in Lancaster on 10th June 1987.

10 **Jordan** 24 English lecturers at the tertiary level in Jordan; collected by Ali A. Al-Rabba'i of the Language Centre of Yarmouk University in Irbid; received in Lancaster on 14th July 1987.

11 **Spain** 12 primary and secondary school teachers involved in the reform of the English syllabus and participating in a workshop at Lancaster; completed the questionnaire on 22nd July 1987.

12 **Indonesia (2)** 13 English lecturers at the IKIP (Teacher Training Institute), Ujung Pandang, Indonesia; collected by Hafsah Nur, Head of the English Department at the Institute; received in Lancaster on 29th July 1987. (3)

A preliminary analysis of the completed questionnaires showed that a quarter of all respondents misunderstood, misinterpreted or failed to complete parts of the questionnaire. Unfortunately, therefore, it has to be acknowledged that parts of the questionnaire are not so clear and unambiguous as they might be. Questions 5.a and 5.b, which asked respondents to indicate the point at which problems began because classes were small and the point at which they became intolerably small, were particularly prone to misinterpretation. Although the questionnaire used in this study was the fifth version, it clearly required yet further revision.

Responses are considered to be 'valid' only if they satisfy all of the following conditions :

1 There are no missing responses; i.e. every question is answered.

2 Answers to question 1a are larger than or equal to answers to question 1b.

3 Answers to question 2 are no larger than answers to question 1a.

4 Answers to question 2 are no smaller than answers to question 1b.

5 Answers to question 3 are smaller than answers to question 4a.

6 Answers to question 3 are larger than answers to question 5a.

7 Answers to question 4a are smaller than or equal to answers to question 4b.

8 Answers to question 5b are smaller than or equal to answers to question 5a.

Essentially, then, what we are looking at here is a set of relationships between two distinct sets of data, as Figure 1 represents.

EXPERIENCE	PERCEPTION
	(4b) large, intolerable
	(4a) large, problems begin
largest (1a)	
usual (2)	(3) ideal
smallest (1b)	
	(5a) small, problems begin
	(5b) small, intolerable

Figure 1 *Relationships between Data Concerning Experienced Class Size and Perceptions of Class Size*

That is to say, we have stipulated that the data regarding ***experience*** of class sizes shall be ordered in the common sense way which the diagram suggests, with the largest class at least as large as the usual size class, and the smallest class at least

as small as the usual size class. We have also stipulated a similar set of relationships between all the data items in the ***perception*** column. However, we have ***not*** said anything at all about how we expect the two distinct sets of data to relate to each other.

After all the incomplete or problematic questionnaires have been removed, we are left with 149 perfectly 'valid' responses, as Table 2 shows.

Table 2 *Valid Responses to Questionnaire on Actual and Perceived Class Size*

Source		Responses	Valid
1	IELE (1)	35	27 (77%)
2	IELE (2)	13	9 (69%)
3	Turkey	12	10 (83%)
4	Indonesia (1)	28	16 (57%)
5	Madagascar	14	12 (86%)
6	Mali	21	15 (71%)
7	Japan	13	9 (69%)
8	Colchester	8	6 (75%)
9	Greece	8	5 (63%)
10	Jordan	24	21 (88%)
11	Spain	12	8 (67%)
12	Indonesia (2)	13	11 (85%)
Total		201	149 (74%)

4 Analysis

A complete summary of responses to all the questions in the questionnaire is given in Appendix 2, Tables 2.1 - 2.12, where the responses are presented group by group. The responses from

the two groups of IELE respondents are included for the sake of completeness, although in fact these groups are both so heterogeneous that their responses do not provide us with a 'picture' of any specific situation. In fact the first group of IELE respondents could probably be broken down into sub-groups according to country of origin because there were considerable numbers of people from Mali, Brazil and Sénégal among them. But that will have to wait.

Another point to be made is that although only the completely 'valid' responses are included here this does not mean to say that some of the other responses are not of use to us. This is just a preliminary sorting of the data before we move on to other things.

A third observation which needs to be made here is that our groups of respondents cannot be taken to be representative, in any way, of the countries or types of institutions in which they are working. We have used the labels 'Mali', for example, or 'Indonesia (1)', for the sake of convenience, but we are under no illusions that the data which we have available provides a representative picture of the situations obtaining in those countries.

Table 3 (below) shows that the majority of the respondents teach English in universities and colleges. Just under a third teach at the secondary level, and a very small number teach in

primary schools or in other types of institution. We are therefore particularly keen to establish links with primary or secondary school teachers who are teaching English in large classes. At the same time we are still interested in getting in touch with teachers of large classes at *any* level.

Table 3 *Institutions in which Respondents Providing 'Valid' Responses are Employed*

Source		N	Type of institution a Primary/ elementary	b Secondary	c College/ university	d Other
1	IELE (1)	27	-	14	12	1
2	IELE (2)	9	-	2	7	-
3	Turkey	10	-	-	10	-
4	Indonesia (1)	16	1	3	16	1
5	Madagascar	12	-	4	10	1
6	Mali	15	4	8	3	-
7	Japan	9	-	-	9	2
8	Colchester	6	-	6	-	-
9	Greece	5	-	5	-	-
10	Jordan	21	-	1	20	-
11	Spain	8	2	6	-	1
12	Indonesia (2)	11	-	-	11	-
Total respondents		149	7	49	98	6
Total responses		160	4.4%	30.6%	61.3%	3.8%

From Table 3 it can also be seen that the 149 respondents make claims to teach in 160 different institutions. In other words, several respondents work in more than one type of institution at the same time. Their responses to other parts of the questionnaire, therefore, may refer to their experience in any or all of these institutions. (It is likely that some

respondents are teaching in two or more institutions ***of the same type***. This is not, of course, revealed by the questionnaire.)

The responses presented in Appendix 2 and summarised in Table 2.13 in the same Appendix indicate that the 'usual' class size encountered by individual respondents ranges from one claim of around 13 (a participant in the second IELE group) to one of 90 (a member of the first Indonesian group). Group averages for 'usual' class size themselves cover a wide range, from 26.8 (the second IELE group) to 57.7 (the Colchester group).

The same set of tables in Appendix 2 shows that the 'largest' class size experienced by individual respondents ranges from a claim of 15 (a member of the second IELE group) to a claim of 140 (a participant in the first Indonesian group). Group averages for 'largest' class size range from 33.1 (the Mali group) to 100.3 (the first Indonesian group).

These responses enable us to begin to develop a picture of how large language classes actually are in different types of institution in different parts of the world. At the same time, as emphasised above, we are not yet in a position to make any generalisations. Clearly, also, there are very great variations in respondents' experience of class size. This finding confirms one of our initial assumptions. However, it is beginning to look as though it may be difficult to define 'large' in terms of a single number.

5 Relationships Between Experience And Perception

5.1 Hypotheses

Figure 1 (Section 3 above) indicates that each respondent provides eight different items of data. Three of these pieces of data concern the class sizes to which respondents are accustomed, and the other five concern respondents' perceptions of class sizes. It is possible to investigate relationships between these two sets of data in two different ways.

Firstly, it is possible to look at the way in which respondents' perceptions of class size relate to their experience in terms of the actual numbers mentioned. Thus, for example, it may be useful to trace whether respondents' perceptions of ideal class size are larger than, equal to or smaller than the usual class size to which they are accustomed. The Research Project members had no clearly formulated preconceptions about the ways in which the data concerning experience would relate to the data concerning perceptions. However, there was a suspicion that there would be a tendency for respondents to save face by *not* admitting to teaching groups which were so large that they were encountering problems. In other words, it was assumed that respondents would tend to claim that the classes which they customarily taught were *below* the point at which problems began or the point at which teaching became intolerable.

Secondly, it is possible to investigate the ***strength*** of the relationships between the class sizes experienced and the class sizes perceived as being large, ideal or small. There are five possible hypotheses about the relationship between the figures on the left hand side of Figure 1 and those on the right hand side of the Figure.

Hypothesis 1 All English teachers, in whatever situation they find themselves, share universal perceptions of the size of the ideal class and of the points at which classes become too large or too small. Since we know from experience (and from the findings of Section 4 above) that actual class size varies widely, the corollary is that there can be no relationship between actual and perceived class sizes.

Hypothesis 2 The size of the ***normal*** class with which teachers are familiar functions as the 'norm' against which they formulate their perceptions of the ideal, the excessively small and the excessively large.

Hypothesis 3 The size of the ***largest*** class which teachers teach provides the benchmark against which they formulate their perceptions of the ideal, the excessively small and the excessively large.

Hypothesis 4 The size of the ***smallest*** class which teachers teach provides the benchmark against which they formulate their perceptions of the ideal, the excessively small and the excessively large.

Hypothesis 5 The size of the largest class normally taught is related to perceptions of excessively large classes; the size of the smallest class normally taught is related to perceptions of excessively small classes; and the usual class size explains perceptions of the ideal class size.

In the remainder of this Report, the data provided by the 149 respondents is analysed with a view to proving or disproving these hypotheses - that is to say, with the purpose of

investigating the relationships between the two sides of the diagram in Figure 1.

5.2 Comparison of experience and perception

From Table 2.13 in Appendix 2, and from Table 4 below, it can be seen that the average 'largest class size' normally taught by all 149 respondents with valid responses is 52.9. This is slightly larger than the mean figure of 51.5 which respondents give as the point at which classes become intolerably large, and it is very much larger than the figure of 38.2 which is the average of perceptions of the point at which problems begin because classes are large.

Table 4 *Relationships between Experienced Class Size and Perceptions of Class Size*
N = 149

Experience	Mean	Perception
largest	52.9	
	51.5	large, intolerable
	38.2	large, problems begin
usual	36.1	
smallest	23.3	
	21.5	ideal
	8.3	small, problems begin
	4.5	small, intolerable

The average for the size of class which all respondents normally teach is 36.1. This is only just below the point (38.2) at which problems begin. In other words, the average 'largest class' which respondents teach is bigger than the size which the same respondents consider to be intolerably large, and very much bigger than the point at which they begin to experience problems. Furthermore, the average 'usual class' which these respondents teach is itself only slightly smaller than the point at which they begin to experience problems. Thus, respondents are very much accustomed to teaching classes which are problematic because too large or intolerably large.

The average 'smallest class' which these teachers teach has 23.3 members, whilst the average 'ideal class' has 21.5 members. The average size of classes which are so small that teachers begin to experience problems in them is 8.3, and the average size of classes which are intolerably small is 4.5. That is to say, respondents are teaching classes which are considerably larger than their ideal class size, but - yet more striking - the class size which these teachers believe to be ideal is smaller even than the size of the smallest class which these teachers normally experience.

To summarise, respondents are teaching classes which are very much larger than the size which they consider to be ideal, indeed larger than the point at which they believe problems begin. Thus, large classes, as the teachers themselves define

them, are well within their experience. On the other hand, small classes, as the teachers define them, appear to be well outside their experience.

In this discussion, we have been making use of the average of those figures given by all 149 respondents, even though it is clear from the tables in Appendix 2 that there are very considerable variations between individual respondents. Another way of investigating the relationships between experienced class size and perceptions of class size is to look at the number of individuals who consider that an aspect of their experience (e.g. usual class size) is larger than, equal to or smaller than an aspect of their perceptions (e.g. ideal class size). These calculations are presented in Appendix 3.

Table 3.1, in Appendix 3, indicates that almost 72% of all respondents believe that the largest class which they regularly teach is larger than the point at which problems begin because classes are too large. More than 83% believe that their largest class is as large as or larger than the point at which problems begin.

Table 3.6 shows the relationship between usual class size and respondents' perceptions of ideal class size, whilst Table 3.7 shows the relationship between usual class size and the point at which problems begin because classes are too large. From these tables it can be seen that 99% of all respondents believe

that their usual class size is larger than or equal in size to the class size which they believe to be ideal. However, more than 70% of respondents see their usual class size as being smaller than or equal in size to the point at which problems begin because classes are too large. In other words, the majority of respondents see themselves teaching classes which generally fall between the ideal and the large. At the same time, most respondents feel that they occasionally teach classes which are even larger than the point at which problems commence.

Tables 3.4 and 3.5 suggest that hardly any respondents believe that they are teaching small classes.

The results of the analysis presented in Appendix 3 and of the analysis given in Table 2.13 are summarised diagrammatically in Figure 2. It is very clear from this figure that most of the teachers who responded to the questionnaire feel that they normally teach classes which are verging on the 'large'. The majority regularly experience teaching in their largest classes which are approximately equal in size to the point which they consider to be intolerable. The normal class size which these teachers work with is much larger than the class size which they consider to be ideal. And hardly any respondents have an opportunity to work in classes which they consider to be 'small'.

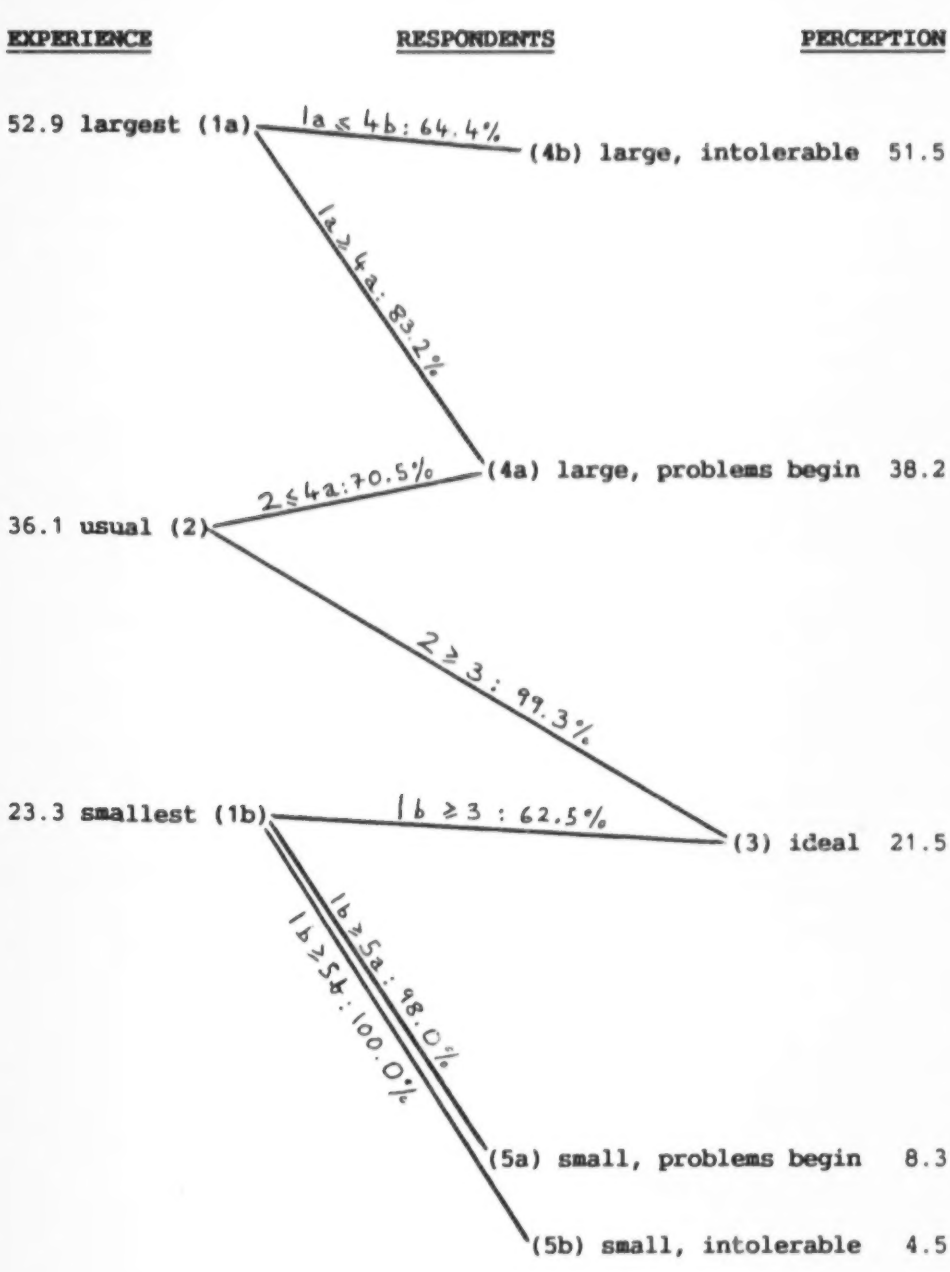

Figure 2 *Relationships between Experienced and Perceived Class Size*

Note : Percentages shown are the percentages of respondents making responses about experience which are larger than/equal to or smaller than/equal to responses about perception

In Section 5.1 above, it was tentatively hypothesised that respondents would be reluctant to admit that they were teaching classes in which they experienced problems. There is now strong evidence that this hypothesis must be rejected, since four out of every five teachers believe that the largest classes which they regularly teach are larger than or equal in size to the point at which difficulties are experienced.

We are now almost in a position where we can move on to an investigation of the ***strength*** of the relationships between experience and perception of class sizes. However, before we do so, it is interesting to observe that there are some signs in the data that the relative positions in Figure 2 of responses regarding usual class size (question 2) and the point at which problems begin because classes are too large (question 4a) change according to the size of the ***largest*** class which respondents regularly teach. There are indications that when the largest class taught has no more than forty members then respondents are predominantly of the opinion that their usual class size is smaller than the level at which problems begin. But, when the largest class regularly taught has more than forty participants, then teachers tend to claim that even their usual classes are bigger than the point at which problems begin. For the time being, however, this trend and th significance of the number forty cannot be confirmed until we obtain more responses from teachers of particularly large classes.

5.3 Strength of relationships between experience and perception

In Section 4 above we noted that there is considerable variation in the size of classes which respondents have actually experienced teaching. The same seems to be true of respondents' perceptions of the size of the ideal class and the point at which classes become 'large'.

The responses summarised in Appendix 2 indicate that individuals' perceptions of the 'ideal' class size range from 6 (one of the respondents in the Mali group) to 50 (two people in the first Indonesian group). Group averages for 'ideal' class size cover the range from 14.4 (the respondents from Greece) to 32.5 (the Colchester group).

The tables in Appendix 2 also show that individual perceptions of the point at which problems begin because classes are large range from 15 (a member of the group of university lecturers in Japan) to 100 (two people in the first Indonesian group). Group averages for the point at which problems begin because classes are large range from 30.0 (the group of Greek school teachers) to 55.6 (the first Indonesian group).

It is necessary at this point to investigate the possibility that, on the one hand, perceptions of ideal class size and perceptions of class size where problems begin (etc) are in any way related to, on the other hand, the size of class which

teachers have actually experienced. The possibility of such relationships existing is posited in the five formal hypotheses in Section 5.1 above. It was decided to test this possibility by employing Kendall's tau. [4] In order to make the working simpler, the mean scores for each of the twelve groups of respondents are ranked, rather than the individual scores for all 149 individual respondents.

From Figures 1 and 2 above it will be remembered that we have three sets of data regarding respondents' actual experience (largest class regularly taught, smallest class regularly taught, and usual class size). We also have five sets of data regarding perceptions (ideal class size, and the points at which problems begin because classes are large, at which they become intolerably large, at which problems begin because classes are too small, and at which they become intolerably small). Consequently, there are fifteen correlations between 'experience' and 'perception' which can be made. These correlations are presented in Appendix 4, Tables 4.1 - 4.15. Six of the fifteen tests produce significant results.

How are the results of these fifteen tests to be interpreted? Figures 3, 4 and 5 on the following pages represent these results diagramatically. In each of the three figures, a solid line indicates a relationship which has been shown to be statistically significant, whilst a broken line indicates a relationship which is not statistically significant.

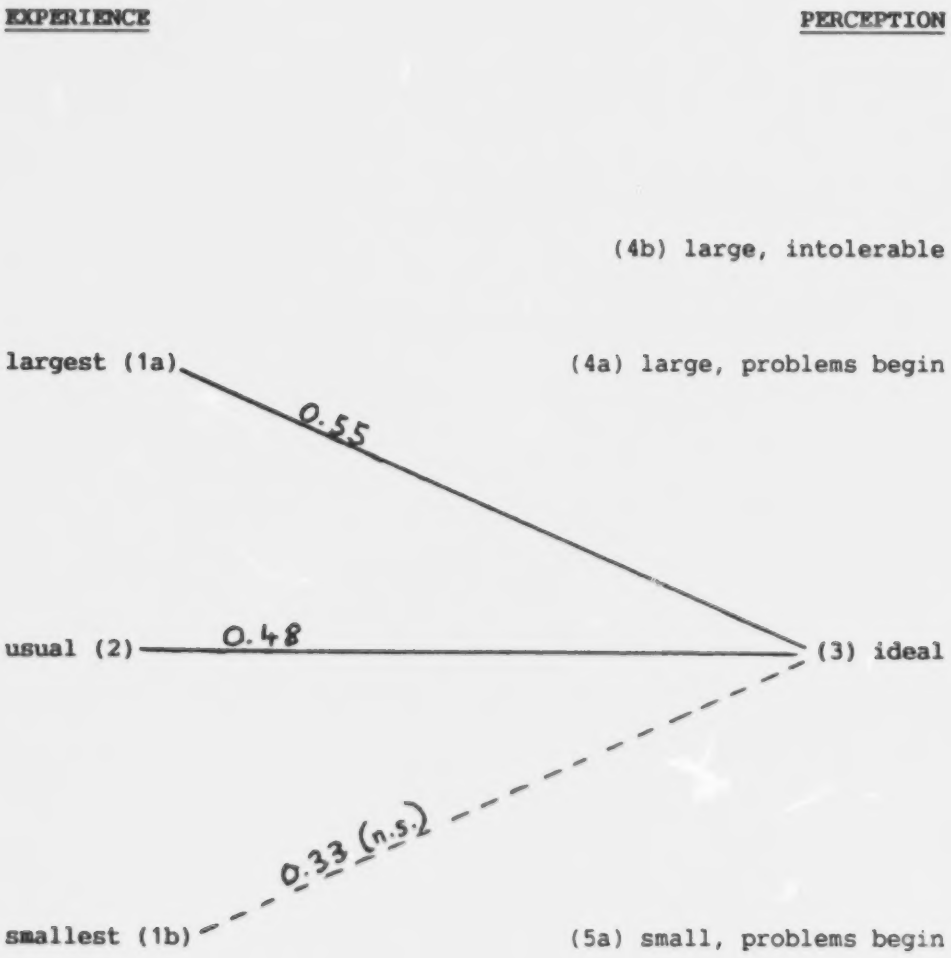

Figure 3 *Relationships between Experience of Class Sizes and Perceptions of the Ideal Class Size* (from Appendix 4, Tables 4.1 - 4.3)

In Figure 3, the relationships between the three aspects of class size which respondents have actually experienced, on the one hand, and their perceptions of the ideal class, on the other hand, are illustrated. It appears that the relationship between the size of the largest class which respondents teach and ideal class size, and the relationship between usual class size and ideal class size are both significant (because in both cases the value of tau is greater than the significant level of 0.43). In other words, there is strong evidence here that the larger one's ***largest*** regularly taught class is, the larger one's ideal class size is likely to be. Or, to put it another way, the bigger a teacher's biggest class is, the more tolerant that teacher is likely to be of big classes. (Strictly speaking, we should be talking here of 'a group of teachers' rather than 'an individual teacher'.) The influence of the ***usual*** size of one's regularly taught classes, though still of some significance, appears to be less important than the influence of the size of one's largest class.

Figure 4 illustrates the relationships between the class sizes which respondents have experienced and their perceptions of the points at which problems begin and classes become intolerable because they are too large. Four of these relationships are statistically significant. However, it is clearly the case that the relationships between the size of the ***largest*** class which respondents regularly teach and their perceptions of classes which are too large are stronger than the relationships between

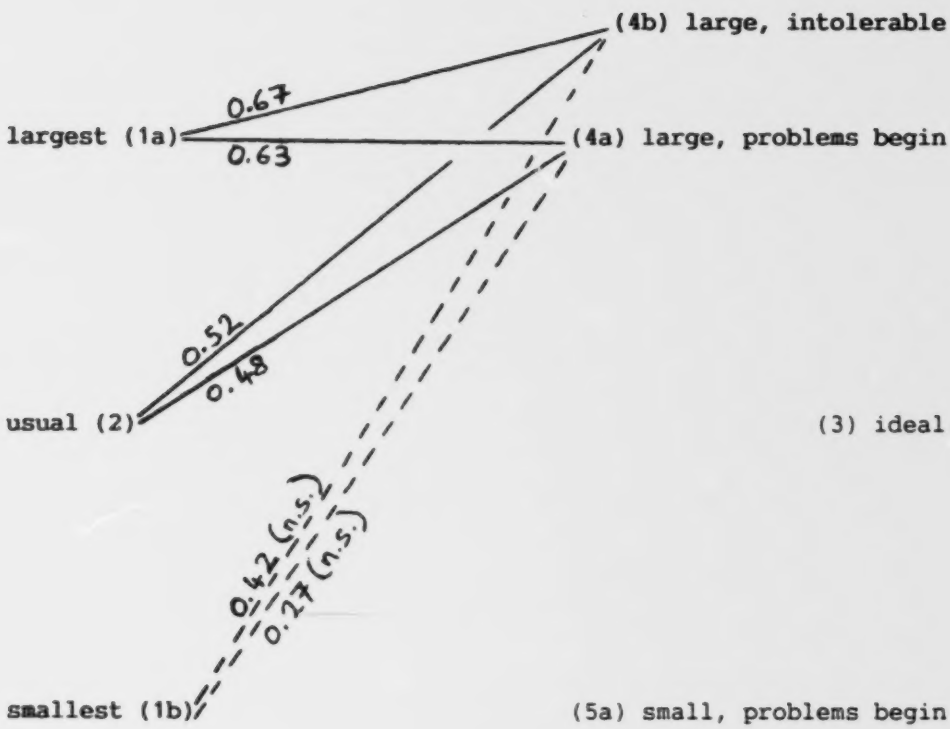

Figure 4 *Relationships between Experience of Class Sizes and Perceptions of Classes which are Too Large* (from Appendix 4, Tables 4.4 - 4.9)

the *usual* size of class which the respondents teach and those same perceptions. That is to say, the larger one's largest class is, the larger a class is likely to be for problems to be felt or for it to be considered impossibly large. Alternatively, if the largest class which a teacher teaches is small (in absolute terms), then that teacher is likely to begin to experience problems because of numbers with classes which are relatively small. Once again, therefore, teachers (strictly speaking, groups of teachers) are more tolerant of large classes the larger their own largest classes are.

Figure 5 illustrates the relationships between the classes which respondents regularly teach and their perceptions of the points at which classes become too small. Of the six correlations involved, the strongest two are between the size of the smallest class which teachers regularly teach and their perceptions of difficulty caused by lack of numbers. However, none of these relationships is statistically significant. The implication of these findings seems to be that actual experience is not an important influence on the answers which teachers give to these questions. One possible explanation is that, as Figure 2 shows, relatively few of these respondents have ever found themselves in the situation of having too few learners in a class. Consequently, their responses to questions about small classes are likely to be purely hypothetical - guesses, in other words - and not related to actual experience.

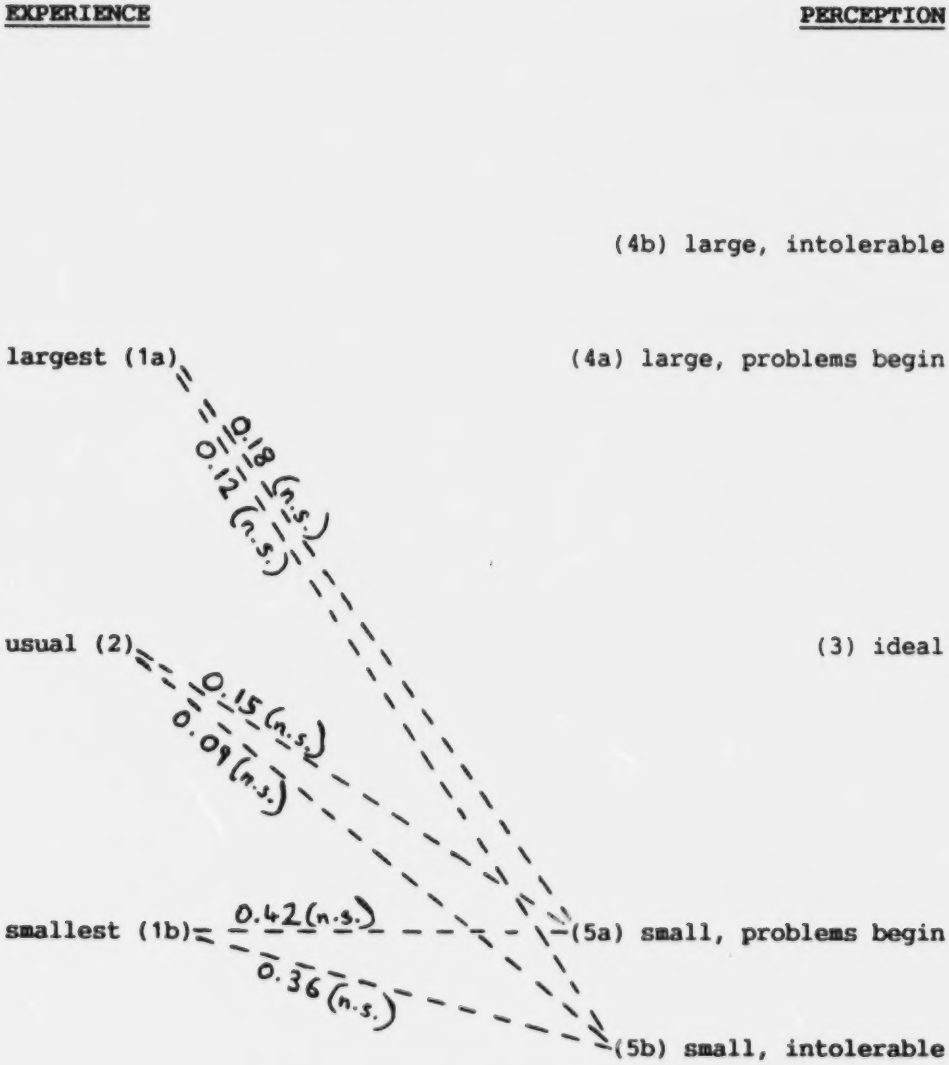

Figure 5 *Relationships between Experience of Class Sizes and Perceptions of Classes which are Too Small* (from Appendix 4, Tables 4.10 - 4.15)

We can summarise the findings so far in the following way. If we look again at Tables 2.1 - 2.12 in Appendix 2, we can see that all groups believe that they are regularly teaching classes which have more than the ideal number of learners; indeed, in some cases, the differences between normal experience and the ideal are very striking. Figure 2 has revealed similar results regarding individual respondents. In other words, respondents are accustomed to teaching classes which, in their own terms, are too big.

Now, the most powerful relationships which have been revealed are those between the size of the largest class which respondents regularly teach and their estimations of the points at which classes become difficult or impossible to teach because they are too large. The 'usual' class size to which respondents are accustomed also has an influence here, although it is weaker than the size of the largest class which they teach. A similar, though somewhat weaker, relationship can be seen between the size of the largest class which teachers teach and the number of learners which they believe to be ideal. As respondents only infrequently teach classes which have an ideal number of learners - in some cases never at all - there must be an element of hypothesising (or wishful thinking!) in the answers which respondents have given to the question about ideal class size. Finally, we have seen that there is almost no relationship at all between respondents' classroom experience and the points at which they believe classes become too small. The likelihood is that

these responses are imaginative rather than realistic, simply because the majority of respondents never have access to situations where classes are too small.

We are now in a position to reconsider the five hypotheses which were posited in Section 5.1 above. There are statistically significant relationships between some of the elements of respondents' experience and some of the elements of their perceptions. In other words, there are apparently no universal or uniform perceptions concerning ideal (etc) class size, and consequently we must reject the first hypothesis.

The fourth and fifth hypotheses must be rejected for similar reasons.

Hypothesis 2 suggested that there was a relationship between teachers' usual class size and their perceptions of ideal (etc) class size. Figures 3 and 4 provide some evidence in support of this hypothesis. But two of the three relationships between usual class size and perceptions which are indicated in those figures are on the borderline of significance (where the value of tau is 0.48, only very slightly higher than the critical value of 0.43). Furthermore, there is no significant relationship at all between usual class size and perceptions of the point at which classes become too small.

Hypothesis 3 suggested that there was a relationship between the size of the largest class size which teachers regularly teach and their perceptions of class size. There is strong evidence from Figures 3 and 4 to support this hypothesis, or at least a modified version of it. Of the fifteen tests of correlation carried out, the three strongest results indicate a relationship between largest class size and aspects of respondents' perceptions of class size. The modification required is that the relationship between largest class size appears not to extend to respondents' perceptions of the size of classes which are too small.

5.3 The importance of 'largest class size'

The discussion in Section 5.3 indicates that it may be the size of the largest class which teachers teach which has the strongest influence on the way in which they perceive class size in general. A similar relationship was seen as being a possibility in Section 5.2, although it was not proved. In order to examine this further, all the 149 'valid' responses were sorted according to the size of the largest class which respondents claimed they regularly taught. These responses were then grouped, as Figure 6 shows, in twenties. (The responses are given in full in Appendix 5, Tables 5.1 - 5.7.) The largest number of respondents (43%) claimed that their largest classes had between 21 and 40

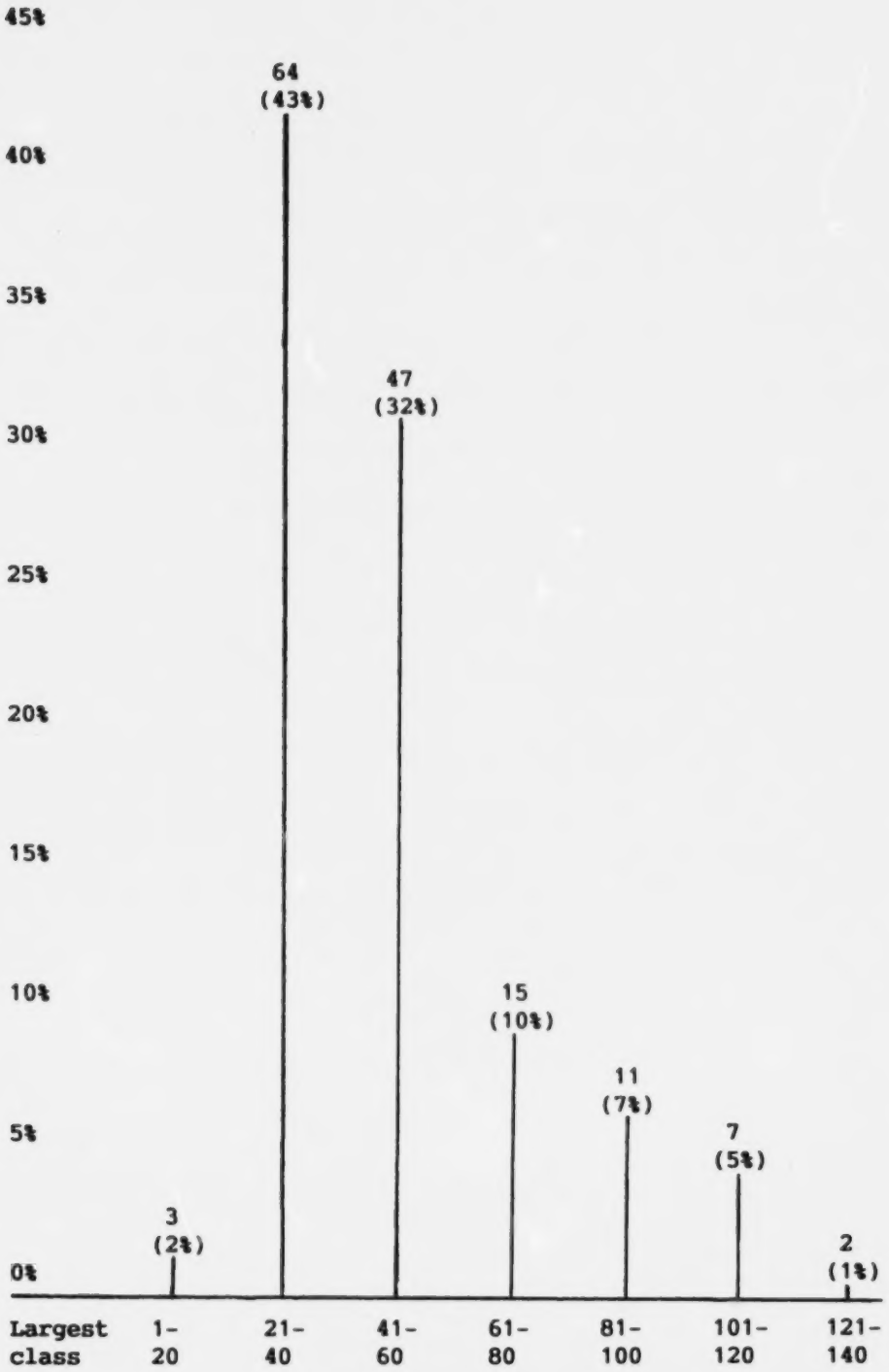

Figure 6 *Distribution of Responses Concerning Size of Largest Class Regularly Taught, As Percentage of All Valid Responses* N = 149

learners. Another 32% of respondents claimed that their largest classes had between 41 and 60 learners, whilst 10% have largest classes with up to 80 learners.

The details of Appendix 5 are summarised in Tables 5 and 6 below.

Table 5 suggests that the usual class size to which teachers are accustomed increases roughly in line with the size of the largest class which they teach. Thus, those respondents whose largest class has no more than twenty members have an average of 16.2 learners in their usual classes, whereas those whose largest class has up to 140 members have an average of 52.5 learners in their usual classes. The size of the smallest classes which respondents teach also increases approximately in line with the size of their largest classes, but without the same regularity.

Table 5 *Summary of Responses Concerning Experienced Class Size, Analysed by Largest Class Regularly Taught*

Largest	Usual	Smallest
1- 20	16.2	11.0
21- 40	28.2	19.6
41- 60	38.7	24.7
61- 80	44.4	22.6
81-100	49.9	35.4
101-120	55.7	30.9
121-140	52.5	42.5

The summary presented in Table 6 is considerably more interesting than that in Table 5, however. Here, increases in

the size of the largest classes which respondents teach can be matched against changes in the numbers which respondents quote as being ideal, beginning to be difficult because too large, intolerably large, beginning to be difficult because too small and intolerably small.

It will be seen that estimates of the size of the ideal class rise in perfect synchrony (from 13.7 to 32.5) as the size of the largest class rises. The point at which problems begin because classes are too large also increases (from 25.0 to 62.9) almost in parallel with the size of the largest class regularly taught, although with a slight irregularity at the top end (where there are very few respondents). The point at which classes become intolerably large increases as well, from 33.3 to 85.0, in line with the rise in the size of the largest regularly taught class, though once again with a slight irregularity at the top end. Not only that, but the point at which respondents believe classes begin to be problematic because they are too small also rises, from 5.7 to 13.0, in parallel with the rise in the size of the largest regularly taught class. And finally, the size of intolerably small classes also increases, from 3.0 to 6.5, almost perfectly in line with the increase in the size of the largest taught class.

In other words, this analysis provides further confirmation that it is the size of the ***largest*** class which teachers regularly teach which has the most powerful influence on the way in which

they evaluate class size in general. The larger one's largest class is, the larger one's ideal class is likely to be, the larger a class is likely to be before it becomes too large to teach, and the larger it is likely to be before it becomes too small to teach. Once again, therefore, the evidence suggests that Hypothesis 3 (Section 5.1) can be accepted.

Table 6 *Summary of Responses Concerning Perceptions of Class Size, Analysed by Largest Class Regularly Taught*

Largest	Large intol'ble	Large, problems begin	Ideal	Small, problems begin	Small intol'ble
1- 20	33.3	25.0	13.7	5.7	3.0
21- 40	44.5	34.1	18.7	7.9	4.3
41- 60	50.0	37.4	21.8	8.6	4.3
61- 80	60.5	42.1	23.6	8.3	4.8
81-100	64.5	44.5	28.0	8.9	4.6
101-120	85.0	62.9	31.0	9.4	5.9
121-140	80.0	55.0	32.5	13.0	6.5

To conclude this discussion, we can observe two interesting patterns when the extremes of the continuum in Table 6 are compared with each other. For those with the smallest classes (i.e. those whose largest class never exceeds 20 learners), the ideal class size is 13.7. Yet for those with the largest classes (i.e. teachers whose largest class has upto 140 participants), classes with 13 members are already becoming difficult to teach because they are too small. Similarly, the ideal class size, according to teachers who have the largest classes, is 32.5. But this is very close indeed to the number (33.3) which those with the smallest classes give as being the point at which classes

become impossible to teach. The almost perfect symmetry of these patterns is notable. Nevertheless, caution is required in interpreting this symmetry, since the two groups of respondents which form the poles of this continuum both have relatively few members.

6 Conclusions

In the first stage of its investigations, during 1987, the Lancaster-Leeds Language Learning in Large Classes Research Project concentrated on teachers' perceptions of the size of large classes and tried to relate these perceptions to teachers' experience. It was able to establish that teachers do find large classes to be problematic, and that they tend to interpret the expression 'large class' not only in terms of the numbers involved.

It has also been established that class size varies from country to country, and possibly also from one type of institution to another. Furthermore, teachers' perceptions of the size of an ideal class and their ideas of 'large' and 'small' classes all tend to vary considerably. There is no evidence that teachers share a universal conception of the size of the ideal, large or small class.

However, there seems to be evidence of a strong relationship (in terms of a positive correlation) between the size of the largest class which teachers regularly teach and their perceptions of the size of an 'ideal' class. There is an even stronger relationship (also in terms of a positive correlation) between the size of the largest class regularly taught and teachers' perceptions of 'large'.

Although we were unaware of the work of Ryan and Greenfield until very recently, our work so far seems to confirm the following finding from their review (1975:223-224) of research studies related to class size :

> There is no such thing as a small or large class. Because a 'small' class of 30 may prove to be as effective as a 'small' class of 20, it is obvious that the absolute size is not the vital factor. The opinion of the teacher is probably what determines 'small' or 'large'. This opinion, in turn, is dependent on such things as :
>
> a the size of the class relative to other classes in the school or district;
> b the size of the class relative to the teacher's experiences and training;
> c the level of schooling;
> d the subject; and
> e the total teacher workload.

Our results so far have proved intriguing. But this research is incomplete. The majority of the respondents teach at the tertiary level, whilst other types of institution are poorly represented. The majority of respondents have classes numbering 21 to 60; very few teach classes which are extremely large (in absolute terms). And the analysis so far has been performed by hand, which has meant that only a relatively unsophisticated test of correlation has been employed. It is to be hoped that all of these deficiencies can be avoided as the research progresses.

Notes

1 This Project Report is a revision of a paper which appeared in two earlier versions in 1987. The questionnaires used in this study were designed cooperatively by members of the Lancaster-Leeds Language Learning in Large Classes Research Project. The administration of the questionnaire, the collection of data and the tabulation of results were performed by several members of the Project and by colleagues outside Britain (who are acknowledged individually in Section 3). Statistical advice was given by Charles Alderson. However, the actual analysis of the data, the interpretation of the results and the writing of this report are my own; nobody else associated with the Research Project is responsible for any inaccuracies or misinterpretations which occur here.

2 More recently, it has been suggested that we have dismissed too readily the indications that some teachers can see advantages in large classes. See, in particular, the criticisms made by Peachey (Project Report No. 8, 1989).

3 We are grateful to all of the 201 respondents who completed the questionnaire, and we are particularly grateful to those people who went to the trouble of administering the questionnaire for us and returning the results to Lancaster and Leeds (in some cases with the assistance of the British Council). We are still eager to receive more completed questionnaires and would like to hear from anybody who is interested in cooperating with us in this way.

4 According to Robson (1973:55) :

> 'Kendall's tau is an index or measure of the tendency of two rank orders to be similar. It deals, not with the scores themselves, but with the order when they have been ranked in size, and it then measures the concordance or agreement between these rank orders. ... It must be stressed that Kendall's tau is a descriptive statistic; it simply describes the direction and degree of the relationship between the variables. It is, however, possible to assess the significance of the relationship between the variables ... If tau exceeds the table value for the number of pairs of scores in the experiment, then there is a significant agreement between the rankings under the two conditions (at the $p = 0.05$ level). If does not exceed the table value, then there is no significant agreement between the rankings under the two conditions (at the $p = 0.05$ level).'

This means that it is possible for us to determine whether the value of tau which we calculate is statistically

significant or not. If the value of tau falls below the value which is given in the table (Robson 1973:147) then it is possible that that figure may occur by chance more than 5 times in 100. But if the value of tau is higher than the value given in the table, then we can be sure that such a result would occur by chance fewer than 5 times in 100. In other words, it is very likely that the value which we have calculated is not a fluke or chance result but is evidence of a significant relationship. With twelve pairs of scores, as we are dealing with here, the significant value of tau is 0.43. That is to say, if the value of tau exceeds 0.43, then there is a statistically significant relationship between the size of classes which respondents have experienced and the sizes which they indicate as being ideal or too small or too large.

References

Robson, Colin. 1973. ***Experiment, Design and Statistics in Psychology***. Harmondsworth : Penguin.

Ryan, Doris W. and Greenfield, T. Barr. 1975. ***The Class Size Question : Development of Research Studies Related to the Effects of Class Size, Pupil/Adult, and Pupil/Teacher Ratios***. (Unpublished Research Project Report.) Toronto, Ontario : Ministry of Education.

Appendix A : Numbers Questionnaire

Important : please think only of ***English Language*** classes.

1 How many people are there :
   a) in the largest class which you regularly teach?
   b) in the smallest class which you regularly teach?

2 What is your usual class size?

3 What is your ideal class size?

4 What class size do you consider to be uncomfortably large?
   a) At what number do the problems begin?
   b) At what number do the problems become intolerable?

5 What class size do you consider to be uncomfortably small?
   a) At what number do the problems begin?
   b) At what number do the problems become intolerable?

6 Among all your problems, how important is class size? Is dealing with large classes (please ring the appropriate letter) :

the major problem	a
one of the major problems	b
a problem, but not a major one	c
a very minor problem	d
no problem at all	e

7 Is the institution you teach in (please ring the appropriate letter) :

primary/elementary?	a
secondary?	b
college/university?	c
other (please specify)?	d

Appendix 2 : Summary of responses to 'numbers' questionnaire, according to respondents' groups

Table 2.1 IELE (1)
35 responses, 27 valid

	1a most	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	1096	485	858.5	524	1000	1259	158	79
Mean	40.6	18.0	31.8	19.4	37.0	46.6	5.9	2.9
Median	40	13	32	20	40	49	5	2
Range	20-64	5-38	15-55	12-35	20-65	30-75	2-15	1-10

Importance 3a, 16b, 6c, 1d
Institutions 14b, 12c, 1d

Table 2.2 IELE (2)
13 responses, 9 valid

	1a most	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	316	150	241.5	167	315	490	72	42
Mean	35.1	16.7	26.8	18.6	35.0	54.4	8.0	4.7
Median	31	16	28	16	30	45	8	5
Range	15-60	5-30	13.5-45	11-30	20-50	35-100	3-15	1-8

Importance 1a, 6b, 1d, 1e
Institutions 2b, 7c

Table 2.3 Turkey
12 responses, 10 valid

	1a most	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	352.5	255	305	210	360	500	95	53
Mean	35.3	25.5	30.5	21.0	36.0	50.0	9.5	5.3
Median	35	25	30	20	35	47.5	10	5
Range	30-40	18-35	25-35	15-30	25-60	30-100	5-15	3-10

Importance 1a, 7b, 2c
Institutions 10c

Table 2.4 Indonesia (1)
28 responses, 16 valid

	1a most	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	1604	489	836	499	889	1190	175	98
Mean	100.3	30.6	52.3	31.2	55.6	74.4	10.9	6.1
Median	102	30	50	25	50	65	10	6.5
Range	40-140	4-50	20-90	10-50	25-100	35-125	3-20	1-10

Importance 4a, 11b, 1c
Institutions 1a, 3b, 16c, 1d

Table 2.5 Madagascar
14 responses, 12 valid

	1a most	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	699	239	475	270	489	660	92	44
Mean	58.3	19.9	39.6	22.5	40.8	55.0	7.7	3.7
Median	60	16.5	40	20	40	60	9	4
Range	50-80	6-40	15-50	15-40	30-50	40-60	2-10	1-7

Importance 2a, 8b, 2c
Institutions 4b, 10c, 1d

Table 2.6 Mali
21 responses, 15 valid

	1a most	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	497	338	437	271	457	594	136	77
Mean	33.1	22.5	29.1	18.1	30.5	39.6	9.1	5.1
Median	31	20	28	20	30	40	10	5
Range	20-45	7-43	20-43	6-25	16-45	24-60	3-15	1-10

Importance 1a, 8b, 5c, 1d
Institutions 4a, 8b, 3c

Table 2.7 Japan
13 responses, 9 valid

	1a most	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	634	232	386	150	291	493	47	27
Mean	70.4	25.8	42.9	16.7	32.3	54.8	5.2	3.0
Median	80	31	40	15	30	50	5	2
Range	41-116	8-39	30-80	10-30	15-60	38-90	0-10	0-10

Importance 7b, 2c
Institutions 9c, 2d

Table 2.8 Colchester
8 responses, 6 valid

	1a most	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	448	246	346	195	295	405	70	39
Mean	74.7	41.0	57.7	32.5	49.2	67.8	11.7	6.5
Median	65	45.5	52.5	30	50	70	10	5.5
Range	58-100	20-55	50-75	25-45	40-60	60-75	10-15	5-10

Importance 1a, 4b, 2c
Institutions 6b

Table 2.9 Greece
8 responses, 5 valid

	1a most	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	175	105	146	72	150	180	30	22
Mean	35.0	21.0	29.2	14.4	30.0	36.0	6.0	4.4
Median	36	27	32	15	35	40	6	4
Range	30-38	8-28	20-33	12-15	20-35	25-40	3-10	2-8

Importance 1a, 4b
Institutions 5b

Table 2.10 Jordan
24 responses, 21 valid

	1a most	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	908	461	645	458	786	919	219	124
Mean	43.2	22.0	30.7	21.8	37.4	43.8	10.4	5.9
Median	40	21	30	21	40	40	10	5
Range	25-63	13-30	20-40	12-25	30-50	35-55	3-20	1-10

Importance 2a, 15b, 3c
Institutions 1b, 20c

Table 2.11 Spain
12 responses, 8 valid

	1a most	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	308	170	269	147	250	331	52	22
Mean	38.5	21.3	33.6	18.4	31.3	41.4	6.5	2.8
Median	40	17.5	32	18.8	30	40	5.5	1.5
Range	30-42	8-39	30-40	12-27.5	25-40	35-50	3-12	0-8

Importance 6b, 2c
Institutions 2a, 6b, 1d

Table 2.12 Indonesia (2)
13 responses, 11 valid

	1a most	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	850	308	435	243	404	654	93	38
Mean	77.3	28.0	39.5	22.1	36.7	59.5	8.5	3.5
Median	70	28	40	20	35	50	8	4
Range	50-100	7-45	30-50	18-30	25-50	35-100	3-18	1-7

Importance 3a, 8b
Institutions 11c

Table 2.13 All respondents
201 responses, 149 valid

	1a most	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	7887.5	3478	5380	3206	5686	7675	1239	665
Mean	52.9	23.3	36.1	21.5	38.2	51.5	8.3	4.5
Range	15-140	4-55	13.5-90	6-50	15-100	24-100	0-20	0-10

Importance 19a, 100b, 25c, 3d, 1e
Institutions 7a, 49b, 98c, 6d

Appendix 3 : Numbers of respondents making responses concerning experienced class size which are larger than, equal to, or smaller than their responses concerning perceptions of class size (N = 149)

Table 3.1 Number of respondents making responses to question 1a (largest class regularly taught) which are larger than, equal to, or smaller than responses to question 4a (class size at which problems begin because too large)

'largest' *is larger than* 'large, problems begin'	107	(71.8%)
'largest' *is equal to* 'large, problems begin'	17	(11.4%)
'largest' *is smaller than* 'large, problems begin'	25	(16.8%)
'largest' *is larger than or equal to* 'large, problems begin'	124	(83.2%)
'largest' *is smaller than or equal to* 'large, problems begin'	42	(28.2%)

Table 3.2 Number of respondents making responses to question 1a (largest class regularly taught) which are larger than, equal to, or smaller than responses to question 4b (class size at which problems become intolerable because too large)

'largest' *is larger than* 'large, intolerable'	53	(35.6%)
'largest' *is equal to* 'large, intolerable'	20	(13.4%)
'largest' *is smaller than* 'large, intolerable'	76	(51.0%)
'largest' *is larger than or equal to* 'large, intolerable'	73	(49.0%)
'largest' *is smaller than or equal to* 'large, intolerable'	96	(64.4%)

Table 3.3 Number of respondents making responses to question 1b (smallest class regularly taught) which are larger than, equal to, or smaller than responses to question 3 (ideal class size)

'smallest' *is larger than* 'ideal'	74	(49.7%)
'smallest' *is equal to* 'ideal'	19	(12.8%)
'smallest' *is smaller than* 'ideal'	56	(37.6%)
'smallest' *is larger than or equal to* 'ideal'	93	(62.5%)
'smallest' *is smaller than or equal to* 'ideal'	75	(50.3%)

Table 3.4 Number of respondents making responses to question 1b (smallest class regularly taught) which are larger than, equal to, or smaller than responses to question 5a (class size at which problems begin because too small)

'smallest' *is larger than* 'small, problems begin'	143	(96.0%)
'smallest' *is equal to* 'small, problems begin'	3	(2.0%)
'smallest' *is smaller than* 'small, problems begin'	3	(2.0%)
'smallest' *is larger than or equal to* 'small, problems begin'	146	(98.0%)
'smallest' *is smaller than or equal to* 'small, problems begin'	6	(4.0%)

Table 3.5 Number of respondents making responses to question 1b (smallest class regularly taught) which are larger than, equal to, or smaller than responses to question 5b (class size at which problems become intolerable because too large)

'smallest' *is larger than* 'small, intolerable'	149	(100.0%)
'smallest' *is equal to* 'small, intolerable'	0	(0.0%)
'smallest' *is smaller than* 'small, intolerable'	0	(0.0%)
'smallest' *is larger than or equal to* 'small, intolerable'	149	(100.0%)
'smallest' *is smaller than or equal to* 'small, intolerable'	0	(0.0%)

Table 3.6 Number of respondents making responses to question 2 (usual class size) which are larger than, equal to, or smaller than responses to question 3 (ideal class size)

'usual' *is larger than* 'ideal'	141	(94.6%)
'usual' *is equal to* 'ideal'	7	(4.7%)
'usual' *is smaller than* 'ideal'	1	(0.7%)
'usual' *is larger than or equal to* 'ideal'	148	(99.3%)
'usual' *is smaller than or equal to* 'ideal'	8	(5.4%)

Table 3.7 Number of respondents making responses to question 2 (usual class size) which are larger than, equal to, or smaller than responses to question 4a (class size at which problems begin because too large)

'usual' *is larger than* 'large, problems begin'	44	(29.5%)
'usual' *is equal to* 'large, problems begin'	20	(13.4%)
'usual' *is smaller than* 'large, problems begin'	85	(57.0%)
'usual' *is larger than or equal to* 'large, problems begin'	64	(43.0%)
'usual' *is smaller than or equal to* 'large, problems begin'	105	(70.5%)

Appendix 4 : Correlations between class size regularly experienced by respondents and perceptions of class size

Table 4.1 Correlation between mean 'usual' class size (question 2) and mean 'ideal' class size (question 3), using Kendall's tau

		Usual mean	rank	Ideal mean	rank
1	IELE (1)	31.8	7	19.4	7
2	IELE (2)	26.8	12	18.6	8
3	Turkey	30.5	9	21.0	6
4	Indonesia (1)	52.3	2	31.2	2
5	Madagascar	39.6	4	22.5	3
6	Mali	29.1	11	18.1	10
7	Japan	42.9	3	16.7	11
8	Colchester	57.7	1	32.5	1
9	Greece	29.2	10	14.4	12
10	Jordan	30.7	8	21.8	5
11	Spain	33.6	6	18.4	9
12	Indonesia (2)	39.5	5	22.1	4

tau = 0.48;
significant at the 0.05 level with 12 pairs of subjects

Table 4.2 Correlation between mean 'largest regularly taught' class size (question 1a) and mean 'ideal' class size (question 3), using Kendall's tau

		Largest mean	rank	Ideal mean	rank
1	IELE (1)	40.6	7	19.4	7
2	IELE (2)	35.1	10	18.6	8
3	Turkey	35.3	9	21.0	6
4	Indonesia (1)	100.3	1	31.2	2
5	Madagascar	58.3	5	22.5	3
6	Mali	33.1	12	18.1	10
7	Japan	70.4	4	16.7	11
8	Colchester	74.7	3	32.5	1
9	Greece	35.0	11	14.4	12
10	Jordan	43.2	6	21.8	5
11	Spain	38.5	8	18.4	9
12	Indonesia (2)	77.3	2	22.1	4

tau = 0.55;
significant at the 0.05 level with 12 pairs of subjects

Table 4.3 Correlation between mean 'smallest regularly taught' class size (question 1b) and mean 'ideal' class size (question 3), using Kendall's tau

		Smallest mean	rank	Ideal mean	rank
1	IELE (1)	18.0	11	19.4	7
2	IELE (2)	16.7	12	18.6	8
3	Turkey	25.5	5	21.0	6
4	Indonesia (1)	30.6	2	31.2	2
5	Madagascar	19.9	10	22.5	3
6	Mali	22.5	6	18.1	10
7	Japan	25.8	4	16.7	11
8	Colchester	41.0	1	32.5	1
9	Greece	21.0	9	14.4	12
10	Jordan	22.0	7	21.8	5
11	Spain	21.3	8	18.4	9
12	Indonesia (2)	28.0	3	22.1	4

tau = 0.33;
not significant at the 0.05 level with 12 pairs of subjects

Table 4.4 Correlation between mean 'largest regularly taught' class size (question 1a) and mean 'large enough for problems to become intolerable' class size (question 4b), using Kendall's tau

		Largest mean	rank	Large, intolerable mean	rank
1	IELE (1)	40.6	7	46.6	8
2	IELE (2)	35.1	10	54.4	6
3	Turkey	35.3	9	50.0	7
4	Indonesia (1)	100.3	1	74.4	1
5	Madagascar	58.3	5	55.0	4
6	Mali	33.1	12	39.6	11
7	Japan	70.4	4	54.8	5
8	Colchester	74.7	3	67.8	2
9	Greece	35.0	11	36.0	12
10	Jordan	43.2	6	43.8	9
11	Spain	38.5	8	41.4	10
12	Indonesia	77.3	2	59.5	3

tau = 0.67;
significant at the 0.05 level with 12 pairs of subjects

Table 4.5 Correlation between mean 'largest regularly taught' class size (question 1a) and mean 'large enough for problems to begin' class size (question 4a), using Kendall's tau

		Largest		Large, problems begin	
		mean	rank	mean	rank
1	IELE (1)	40.6	7	37.0	5
2	IELE (2)	35.1	10	35.0	8
3	Turkey	35.3	9	36.0	7
4	Indonesia (1)	100.3	1	55.6	1
5	Madagascar	58.3	5	40.8	3
6	Mali	33.1	12	30.5	11
7	Japan	70.4	4	32.3	9
8	Colchester	74.7	3	49.2	2
9	Greece	35.0	11	30.0	12
10	Jordan	43.2	6	37.4	4
11	Spain	38.5	8	31.3	10
12	Indonesia (2)	77.3	2	36.7	6

tau = 0.63;
significant at the 0.05 level with 12 pairs of subjects

Table 4.6 Correlation between mean 'usual' class size (question 2) and mean 'large enough for problems to become intolerable' class size (question 4b), using Kendall's tau

		Usual		Large, intolerable	
		mean	rank	mean	rank
1	IELE (1)	31.8	7	46.6	8
2	IELE (2)	26.8	12	54.4	6
3	Turkey	30.5	9	50.0	7
4	Indonesia (1)	52.3	2	74.4	1
5	Madagascar	39.6	4	55.0	4
6	Mali	29.1	11	39.6	11
7	Japan	42.9	3	54.8	5
8	Colchester	57.7	1	67.8	2
9	Greece	29.2	10	36.0	12
10	Jordan	30.7	8	43.8	9
11	Spain	33.6	6	41.4	10
12	Indonesia (2)	39.5	5	59.5	3

tau = 0.52;
significant at the 0.05 level with 12 pairs of subjects

Table 4.7 Correlation between mean 'usual' class size (question 2) and mean 'large enough for problems to begin' class size (question 4a), using Kendall's tau

		Usual		Large, problems begin	
		mean	rank	mean	rank
1	IELE (1)	31.8	7	37.0	5
2	IELE (2)	26.8	12	35.0	8
3	Turkey	30.5	9	36.0	7
4	Indonesia (1)	52.3	2	55.6	1
5	Madagascar	39.6	4	40.8	3
6	Mali	29.1	11	30.5	11
7	Japan	42.9	3	32.3	9
8	Colchester	57.7	1	49.2	2
9	Greece	29.2	10	30.0	12
10	Jordan	30.7	8	37.4	4
11	Spain	33.6	6	31.3	10
12	Indonesia (2)	39.5	5	36.7	6

tau = 0.48;
significant at the 0.05 level with 12 pairs of subjects

Table 4.8 Correlation between mean 'smallest regularly taught' class size (question 1b) and mean 'large enough for problems to become intolerable' class size (question 4b), using Kendall's tau

		Smallest		Large, intolerable	
		mean	rank	mean	rank
1	IELE (1)	18.0	11	46.6	8
2	IELE (2)	16.7	12	54.4	6
3	Turkey	25.5	5	50.0	7
4	Indonesia (1)	30.6	2	74.4	1
5	Madagascar	19.9	10	55.0	4
6	Mali	22.5	6	39.6	11
7	Japan	25.8	4	54.8	5
8	Colchester	41.0	1	67.8	2
9	Greece	21.0	9	36.0	12
10	Jordan	22.0	7	43.8	9
11	Spain	21.3	8	41.4	10
12	Indonesia (2)	28.0	3	59.5	3

tau = 0.42;
not significant at the 0.05 level with 12 pairs of subjects

Table 4.9 Correlation between mean 'smallest regularly taught' class size (question 1b) and mean 'large enough for problems to begin' class size (question 4a), using Kendall's tau

		Smallest mean	rank	Large, problems begin mean	rank
1	IELE (1)	18.0	11	37.0	5
2	IELE (2)	16.7	12	35.0	8
3	Turkey	25.5	5	36.0	7
4	Indonesia (1)	30.6	2	55.6	1
5	Madagascar	19.9	10	40.8	3
6	Mali	22.5	6	30.5	11
7	Japan	25.8	4	32.3	9
8	Colchester	41.0	1	49.2	2
9	Greece	21.0	9	30.0	12
10	Jordan	22.0	7	37.4	4
11	Spain	21.3	8	31.3	10
12	Indonesia (2)	28.0	3	36.7	6

tau = 0.27;
not significant at the 0.05 level with 12 pairs of subjects

Table 4.10 Correlation between mean 'largest regularly taught' class size (question 1a) and mean 'small enough for problems to begin' class size (question 5a), using Kendall's tau

		Largest mean	rank	Small, problems begin mean	rank
1	IELE (1)	40.6	7	5.9	11
2	IELE (2)	35.1	10	8.0	7
3	Turkey	35.3	9	9.5	4
4	Indonesia (1)	100.3	1	10.9	2
5	Madagascar	58.3	5	7.7	8
6	Mali	33.1	12	9.1	5
7	Japan	70.4	4	5.2	12
8	Colchester	74.7	3	11.7	1
9	Greece	35.0	11	6.0	10
10	Jordan	43.2	6	10.4	3
11	Spain	38.5	8	6.5	9
12	Indonesia (2)	77.3	2	8.5	6

tau = 0.18;
not significant at the 0.05 level with 12 pairs of subjects

Table 4.11 Correlation between mean 'largest regularly taught' class size (question 1a) and mean 'small enough for problems to become intolerable' class size (question 5b), using Kendall's tau

		Largest		Small, intolerable	
		mean	rank	mean	rank
1	IELE (1)	40.6	7	2.9	11
2	IELE (2)	35.1	10	4.7	6
3	Turkey	35.3	9	5.3	4
4	Indonesia (1)	100.3	1	6.1	2
5	Madagascar	58.3	5	3.7	8
6	Mali	33.1	12	5.1	5
7	Japan	70.4	4	3.0	10
8	Colchester	74.7	3	6.5	1
9	Greece	35.0	11	4.4	7
10	Jordan	43.2	6	5.9	3
11	Spain	38.5	8	2.8	12
12	Indonesia (2)	77.3	2	3.5	9

tau = 0.12;
not significant at the 0.05 level with 12 pairs of subjects

Table 4.12 Correlation between mean 'usual' class size (question 2) and mean 'small enough for problems to begin' class size (question 5a), using Kendall's tau

		Usual		Small, problems begin	
		mean	rank	mean	rank
1	IELE (1)	31.8	7	5.9	11
2	IELE (2)	26.8	12	8.0	7
3	Turkey	30.5	9	9.5	4
4	Indonesia (1)	52.3	2	10.9	2
5	Madagascar	39.6	4	7.7	8
6	Mali	29.1	11	9.1	5
7	Japan	42.9	3	5.2	12
8	Colchester	57.7	1	11.7	1
9	Greece	29.2	10	6.0	10
10	Jordan	30.7	8	10.4	3
11	Spain	33.6	6	6.5	9
12	Indonesia (2)	39.5	5	8.5	6

tau = 0.15;
not significant at the 0.05 level with 12 pairs of subjects

Table 4.13 Correlation between mean 'usual' class size (question 2) and mean 'small enough for problems to become intolerable' class size (question 5b), using Kendall's tau

		Usual		Small, intolerable	
		mean	rank	mean	rank
1	IELE (1)	31.8	7	2.9	11
2	IELE (2)	26.8	12	4.7	6
3	Turkey	30.5	9	5.3	4
4	Indonesia (1)	52.3	2	6.1	2
5	Madagascar	39.6	4	3.7	8
6	Mali	29.1	11	5.1	5
7	Japan	42.9	3	3.0	10
8	Colchester	57.7	1	6.5	1
9	Greece	29.2	10	4.4	7
10	Jordan	30.7	8	5.9	3
11	Spain	33.6	6	2.8	12
12	Indonesia (2)	39.5	5	3.5	9

tau = 0.09;
not significant at the 0.05 level with 12 pairs of subjects

Table 4.14 Correlation between mean 'smallest regularly taught' class size (question 1b) and mean 'small enough for problems to begin' class size (question 5a), using Kendall's tau

		Smallest		Small, problems begin	
		mean	rank	mean	rank
1	IELE (1)	18.0	11	5.9	11
2	IELE (2)	16.7	12	8.0	7
3	Turkey	25.5	5	9.5	4
4	Indonesia (1)	30.6	2	10.9	2
5	Madagascar	19.9	10	7.7	8
6	Mali	22.5	6	9.1	5
7	Japan	25.8	4	5.2	12
8	Colchester	41.0	1	11.7	1
9	Greece	21.0	9	6.0	10
10	Jordan	22.0	7	10.4	3
11	Spain	21.3	8	6.5	9
12	Indonesia (2)	28.0	3	8.5	6

tau = 0.42;
not significant at the 0.05 level with 12 pairs of subjects

Table 4.15 Correlation between mean 'smallest regularly taught' class size (question 1b) and mean 'small enough for problems to become intolerable' class size (question 5b), using Kendall's tau

		Smallest mean	rank	Small, intolerable mean	rank
1	IELE (1)	18.0	11	2.9	11
2	IELE (2)	16.7	12	4.7	6
3	Turkey	25.5	5	5.3	4
4	Indonesia (1)	30.6	2	6.1	2
5	Madagascar	19.9	10	3.7	8
6	Mali	22.5	6	5.1	5
7	Japan	25.8	4	3.0	10
8	Colchester	41.0	1	6.5	1
9	Greece	21.0	9	4.4	7
10	Jordan	22.0	7	5.9	3
11	Spain	21.3	8	2.8	12
12	Indonesia (2)	28.0	3	3.5	9

tau = 0.36;
not significant at the 0.05 level with 12 pairs of subjects

Appendix 5 : Summary of responses, analysed by size of largest class normally taught

Table 5.1 Respondents whose regularly taught largest class has 1-20 learners
N = 3

	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	33	48.5	41	75	100	17	9
Mean	11.0	16.2	13.7	25.0	33.3	5.7	3.0

Importance 2b, 1c
Institutions 1b, 2c

Table 5.2 Respondents whose regularly taught largest class has 21-40 learners
N = 64

	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	1254	1804.5	1196.5	2182	2850	504	278
Mean	19.6	28.2	18.7	34.1	44.5	7.9	4.3

Importance 6a, 41b, 12c, 2d, 1e
Institutions 3a, 22b, 37c, 2d

Table 5.3 Respondents whose regularly taught largest class has 41-60 learners
N = 47

	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	1162	1817	1024.5	1757	2352	403	201
Mean	24.7	38.7	21.8	37.4	50.0	8.6	4.3

Importance 7a, 32b, 7c, 1d
Institutions 3a, 17b, 29c, 2d

Table 5.4 Respondents whose regularly taught largest class has 61-80 learners
N = 15

	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	339	666	354	632	908	125	72
Mean	22.6	44.4	23.6	42.1	60.5	8.3	4.8

Importance 3a, 10b, 2c
Institutions 1a, 4b, 12c, 1d

Table 5.5 Respondents whose regularly taught largest class has 81-100 learners
N = 11

	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	389	549	308	490	710	98	51
Mean	35.4	49.9	28.0	44.5	64.5	8.9	4.6

Importance 9b, 2c
Institutions 3b, 9c

Table 5.6 Respondents whose regularly taught largest class has 101-120 learners
N = 7

	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	216	390	217	440	595	66	41
Mean	30.9	55.7	31.0	62.9	85.0	9.4	5.9

Importance 2a, 5b
Institutions 1b, 7c, 1d

Table 5.7 Respondents whose regularly taught largest class has 121-140 learners
N = 2

	1b least	2 usual	3 ideal	4a large	4b too large	5a small	5b too small
Total	85	105	65	110	160	26	13
Mean	42.5	52.5	32.5	55.0	80.0	13.0	6.5

Importance 1a, 1b
Institutions 2c

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